

### **Abstract of the Disclosure**

Systems and methods for ensuring proper phase alignment of audio signals which are processed by separate hardware channels in an audio amplification system. In one embodiment, the phase alignment is controlled by determining the number of audio data samples which are stored in the input buffers of multiple audio amplification units and controlling reads from the input buffers to minimize the difference between an actual read-write pointer differential and a target differential. In a master unit, the target differential is a predetermined target value corresponding to a desired delay in the buffer. The actual pointer differential of the master unit is passed to one or more slave units. The actual pointer differential of the master unit is used as the target differential of the slave units. The pointer differentials of the slave units are thereby driven to track the pointer differential of the master unit, keeping the units synchronized.